

REMARKS

In reply to the Office Action of February 11, 2009, Applicant submits the following remarks. Claims 68, 70-75, 78-79, 81, 82, 85, 88, 92, 94 and 99-106 have been amended. Support for the amendment to claim 68 can be found in claim 77 (now canceled) and at least in the specification as filed at page 19, lines 25-27. Claims 70-75, 78-79 and 81 are amended to correct the recitation of "the resin" to "the blend". Claims 78, 79 and 81 are amended to depend from claim 68. The amendment to claim 88 is also supported at page 34, line 30-page 35, line 2. Support for the amendment to claims 82, 85 and 88 can be found in previously pending claim 68 and at least in the specification as filed at page 19, lines 25-27. Claims 92, 94 and 99-106 and have been amended to correct typographical errors. Claims 115-132 are new and are supported by claims 70-75. Applicant respectfully reserves the right to pursue any canceled subject matter in one or more continuing applications. Applicant respectfully requests reconsideration in view of the foregoing amendments and these remarks.

Section 112 Rejections

Claims 68, 70-75, 77-79, 81, 84, 85, 87, 88 and 92-114 are rejected as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 68 and 92, previous to the current amendments the only independent claims, are rejected because they each require grades of a polymer. Different polymer grades are specified as "different polymer structure". It is allegedly unclear to the examiner how a polymer of a single type can be of multiple polymer structures.

Applicant describes primary polymer types as being ABS, HIPS, PP and PC. The example of primary polymer ABS is used here to explain the term "type" and "grades". However, applicant points out that while some of the following apply to each of the primary polymer types, not all of the foregoing apply to impact modified styrene polymer, PP and PC. "ABS is an impact modified styrene acrylonitrile copolymer of at least one alkenylaromatic monomer, at least one of acrylonitrile and methacrylonitrile and at least one aliphatic diene or

rubber.” (Specification as filed at page 2, lines 10-12). “[D]ifferent grades are characterized by different molecular weights, different molecular composition, different polymer structure or morphology” (claims 68 and 92). In the description of ABS, for example, different grades of ABS can have different amounts of the various components. ABS grades typically have a SAN backbone as a random copolymer, but grades are determined based on the type and morphological structure of the rubber. This depends on the chemical composition of the rubber and how the rubber is grafted to the SAN. In addition, copolymers can be put together so that the different monomer blocks are ordered in a variety of ways. For example, if the components of a copolymer are monomers A, B and C, the polymer may be ordered as a block copolymer (AAAAAABBBBBCCCCC), random copolymer (ACBCCABCCCCBAABA), alternating copolymer (ACBACBACBACB) or a periodic arrangement that repeats itself. Polymers can also be linear or branched. The polymers can also include different numbers of monomer constituents, thereby changing the molecular weight. However, each of these modifications can be made to the polymer while retaining the polymer *type*. Therefore, two different ABS materials can be different at the molecular level while still being of the same polymer *type*. Similarly, PP, PC and impact modified styrene polymer can include different grades of materials within each of the polymer types. Therefore, applicant respectfully submits that the use of the terms “type” and “grade” are clear to a person of ordinary skill in the art reading the specification.

Dependent claims 77 (now 68), 82, 85 and 88 were rejected as each reciting a secondary polymer type which can comprise 0 parts of a first polymer of the secondary polymer type and 0 parts of a second polymer of the secondary polymer type, because the blend would allegedly not require any of the secondary polymer type. The claims have been amended to recite “the blend includes the secondary polymer type”, so that the claims each require at least some of the secondary polymer type, but either the first or the second polymer can be at 0 parts, so long as the other polymer of the secondary polymer type exists in the blend.

Applicant thanks the Examiner for pointing out the redundant limitation in claim 92. This language has been deleted from the claim.

Applicant respectfully requests withdrawal of the section 112 rejections.

Section 103 Rejections

Claims 68, 70-75, 79, 81, 82, 85 and 88 were rejected as unpatentable over Schallenberg in view of Landry and Gareiss. Applicant respectfully disagrees in light of the amendments to the claims. Claims 68 and 70 were rejected as anticipated by Schallenberg in view of the teaching reference to Suzuki. Applicant believes that the amendment of claim 68 to incorporate the subject matter of claim 77 moots the anticipation rejection.

Schallenberg describes a material formed in part from recycled plastic material (Abstract). Previously, it had been essential to separate mixed plastics fractions cleanly into the respective grade- and type-pure plastics and then process the fractions (col. 1, lines 28-37). The composition of plastics wastes in household and industrial refuse is extremely variable and can consist of several dozens of different plastics types and grades (col. 1, lines 45-51). Specifically, the following mixtures are typically found:

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Polyethylene (LDPE, MDPE and HDPE)	ca 30%
Polypropylene PP	ca 10%
Polyvinyl chloride (PVC)	ca 15%
Polystyrenes (PS, EPS, ABS, ASA)	ca 15%
Polyamide (PA 6, PA 6, 6 etc)	ca 10%
Other industrial thermoplasts	ca 10%
Thermosets and composites	ca 10%

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(col. 1, lines 53-

61).

The separation of such complex mixtures is often impossible (col. 1, lines 62-65). In the process according to Schallenberg's invention, uncleared plastics up to a certain degree of contamination and non-plastics materials up a certain proportion of the total volume can be processed, added and incorporated into the resulting plastics mixtures (col. 3, lines 15-24). Schallenberg describes a carrier material A, which comprises a newly produced plastics material or plastics waste material containing a uniform type-pure plastic or plastics of various types, a material of any or unknown composition X and an additional component Z selected from fatty acids (col. 2, lines 23-35).

The carrier material A can comprise one or more plastics selected from acrylonitrile/butadiene/styrene polymers (ABS), polyethylenes (PE) including high-, medium- and low-density polyethylene (PE), polycarbonates (PC), polytetrafluoroethylenes (PTFE), polyethylene terephthalates (PET), ethylene/vinyl acetate polymers (EVA), polymethylenes (PMMA), polyoxymethylenes (PEM), styrene/acrylonitrile polymers (SAN), polystyrenes (PS, EPS, ASA), polyamides (PA), polypropylenes (PP), polyvinyl chlorides (PVC) and polyurethanes (PUR) and in particular polyethylene (PE) and/or polypropylene (PP) (col. 3, lines 40-51). The plastics-containing carrier material A can also be carpet remnants or textile remnants (col. 3, lines 52-54). Exemplary specimen sheets are described as being formed from cable wastes, flexible PVC, PE and 5% rubber (col. 7, lines 30-35), or mixtures of HDPE and sawdust (1:9 or 1:3); PP to a mixture M (PVC, HDPE, LDPE, PP, PA, PMMA, POM, PUR, ABS, SAN, PS, PC, TPE, PE/PA, carpet fibers sawdust, plastic food packaging, plastics coated paper or plastics coated cardboard, plastics carrier bags and PPO) (1:1); HDPE and ABS to mixture M (3:2:5); HDPE and mixture M (1:1); HDPE and LDPE and SAN and mixture M (1:2:2:5); PP and ABS/SAN and mixture M (1:1:2) and PP and ABS/PA and mixture M (3:2:5) (col. 8, lines 13-43).

Amended claim 68 is directed to a blend of recycled thermoplastic resins. The blend includes a primary polymer type, wherein the primary polymer type is ABS and makes up about 80 to about 99 parts by weight of the blend, residual additives that comprise about 2 to about 7 parts by weight of the blend; and one or more secondary polymer types that are dissimilar to the primary polymer type, wherein a first polymer of the one or more secondary polymer types is a styrene acrylonitrile copolymer that comprises about 0 to about 19 parts by weight of the blend and a second polymer of the one or more secondary polymer types comprises about 0 to about 7 parts by weight of the blend and the blend includes the secondary polymer type.

Amended claim 82 is directed to a blend of recycled thermoplastic resins, comprising a primary polymer type, wherein the primary polymer type is an impact modified styrene polymer that comprises about 70 to about 99 parts by weight of the blend, one or more secondary polymer types that are dissimilar to the primary polymer type, a first polymer of the one or more

secondary polymer types is a general purpose polystyrene that comprises about 0 to about 10 parts by weight of the blend and a second polymer of the one or more secondary polymer types comprises 0 to about 29 parts by weight of the blend, wherein the blend includes the second polymer type polymer, residual additives including two or more additives and wherein the residual additives comprise about 1 to about 5 parts by weight of the blend.

Amended claim 85 is directed to a blend of recycled thermoplastic resins, comprising a primary polymer type, wherein the primary polymer type includes a PP that comprises about 88 to about 99 parts by weight of the blend; one or more secondary polymer types that are dissimilar to the primary polymer type wherein a first polymer of the one or more secondary polymer types comprises 0 to about 5 parts by weight of the blend and a second polymer of the one or more secondary polymer types comprises 0 to about 7 parts by weight of the blend and the blend includes the second polymer type and residual additives wherein the residual additives comprise about 1 to about 5 parts by weight of the blend.

Amended claim 88 is directed to a blend of recycled thermoplastic resins, comprising a primary polymer type, wherein the one or more polymers of the primary polymer type include a polycarbonate that comprises about 20 to about 98 parts by weight of the blend, one or more secondary polymer types that are dissimilar to the primary polymer type wherein a first polymer of the one or more secondary polymer types comprises 0 to about 78 parts by weight of an impact modified styrene acrylonitrile copolymer and a second polymer of the one or more secondary polymer types comprises 0 to about 10 parts by weight of the blend, wherein the blend includes the secondary polymer type, residual additives wherein the residual additives comprise about 2 to about 10 parts by weight of the blend.

Each of the claims describes the recycled thermoplastic resin as being recovered from waste plastic material derived from one or more post consumer sources selected from office automation equipment, white goods, consumer electronics, automotive shredder residue, building waste and post industrial molding and extrusion scrap, wherein the parts add up to 100.

Schallenberg is directed to forming a mixture from a waste plastics mixture that comes at least in part from household wastes. This can be seen from the high percentage of polyethylene

that is described as being part of the composition of plastic waste (at 30% it makes up more than any other component of the plastic waste). Polyethylene materials are frequently found in consumer packaging, HDPE is given the recycling symbol “2” and LDPE is given the symbol “4”. PP is another common household plastic and is marked with the recycling symbol “5”. That household waste makes up the source of Schallenberg’s material is also evident from the exemplary specimen sheets formed, which each include HDPE or LDPE (as part of mixture M) as well as PP. Mixture M is described as including “plastic food packaging, plastics coated paper or plastics coated cardboard, plastics carrier bags”, all components of household waste. Thus, a person of ordinary skill in the art would understand that the waste products that are used by Schallenberg to form a new plastic material are derived at least in part, if not in great part, from household waste.

Moreover, Schallenberg’s mixture M also appears to reflect the mixture that would be derived from a general or household waste stream. This in combination with the note regarding the difficulty in separating such a complex mixture leads a reader to believe that mixture M is likely an unsorted mixture of these household waste products. The dominant components in Schallenberg’s specimen sheets likely come from “newly produced plastics material or plastics waste material containing a uniform type-pure plastics” while the household waste mixture is likely incorporated as component X (see, e.g., Schallenberg’s claim 1 “said material X is selected from the group consisting of plastics-containing waste material which is different from the plastics-containing carrier material A, household refuse, bulky refuse, paper, cardboard, plastics-coated cardboard, plastics-coated waste paper, landfill refuse, metal . . . ”).

Applicant’s claims, on the other hand, are directed to a blend that includes waste plastic material derived from one or more post consumer sources selected from office automation equipment, white goods, consumer electronics, automotive shredder residue, building waste and post industrial molding and extrusion scrap. These products include a different concentration of materials than what is seen coming from household waste. Office automation equipment, white goods, consumer electronics, automotive shredder residue, building waste and post industrial molding and extrusion scrap are rich in certain types of plastics, including ABS, PP, impact

modified styrene polymer and PC, which are found in a much lesser extent in mixed household waste.

The claims have been amended to reflect the particular primary polymer types and the amount of the primary materials in each specific mixture. In particular, claim 68 requires about 80 to about 99 parts ABS per 100 parts (by contrast, Schallenberg's specimen sheets 8 and 9 require a minimum of 25% ABS/SAN and 20% ABS/PA, respectively), claim 82 requires about 70 to about 99 parts impact modified styrene polymer (where PS is mentioned as a component of mixture M), claim 85 requires about 88 to about 99 parts PP (sheets 8 and 9 include 25% and 30%, respectively of PP) and claim 88 requires about 20 to about 98 parts PC (also mentioned as a component of mixture M, but with no particular amount).

Because a person of skill in the art would read Schallenberg and understand that the materials being compounded into a new material are derived from a different waste mixture, Schallenberg's resulting composition will be formed primarily of different materials. The claimed blends requires materials that are found in a lower percentage in general household waste. Schallenberg uses other materials to dominate the primary polymer that are claimed. Thus, the claims and Schallenberg are directed at dealing with different mixtures of materials. For at least these reasons, applicant submits that the claims as amended are not obvious over Schallenberg alone or in combination with Landry or Gareiss (which do not appear to be used to show the obviousness of the independent claims). Applicant therefore requests withdrawal of the obviousness rejections.

Regarding claim 75, applicant respectfully submits that the standard for showing that the limitations are inherently included in the prior art's disclosure has not been met. For a reference to inherently teach that an element exists, that element must necessarily, always or inevitably exist (see *In re Oelrich*, 666 F.2d 578, 580 (CCPA 1981)). "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." (*Id.*, citing *Hansgirg v. Kemmer*, 102 F.2d 212, 214) (CCPA 1939).

New Claims

New claims 115-132 depend from one of the currently pending claims and thus, the same reasons as presented above apply to the new claims.

**Conclusion**

For the foregoing reasons, the applicant submits that all the claims are in condition for allowance.

By responding in the foregoing remarks only to particular positions taken by the examiner, the applicant does not acquiesce with other positions that have not been explicitly addressed. In addition, the applicant's selecting some particular arguments for the patentability of a claim should not be understood as implying that no other reasons for the patentability of that claim exist. Finally, the applicant's decision to amend or cancel any claim should not be understood as implying that the applicant agrees with any positions taken by the examiner with respect to that claim or other claims.

The fee for the excess claims in the amount of \$454 is being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

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